



# System of Systems (SoS) Demonstration

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# Agenda

- Overview of Demonstration
- Assets
- Scenarios
- Video
- Test Results
- Summary
- Questions







# Demonstration Overview

**Purpose:** Demonstrate Connectivity, Processing, and Targeting Capabilities



## Scenarios

**Baseline:** Cooperative Engagement Tactics

**Scenario 1:** Cooperative Passive Ranging/Targeting

**Scenario 2:** Off-Board Cueing of Onboard Sensors

**Scenario 3:** Cooperative JDAM Attack / BDA



# Demonstration Assets

## Air Assets

**AFL**



**F-15E1**

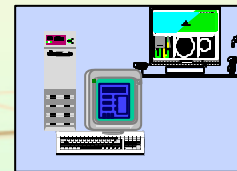
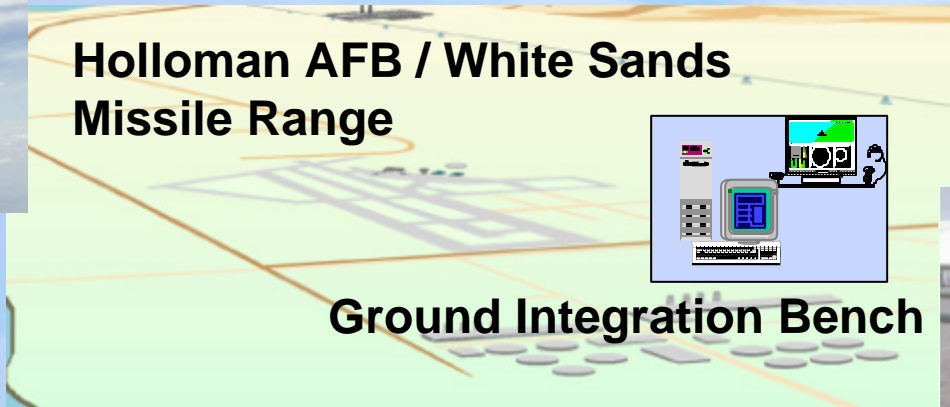


**Test Asset**



## Facilities

**Holloman AFB / White Sands  
Missile Range**



**Ground Integration Bench**

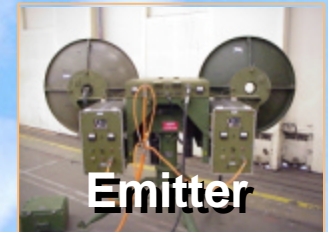
## Weapons



**JDAM**

## Targets

**Emitter**



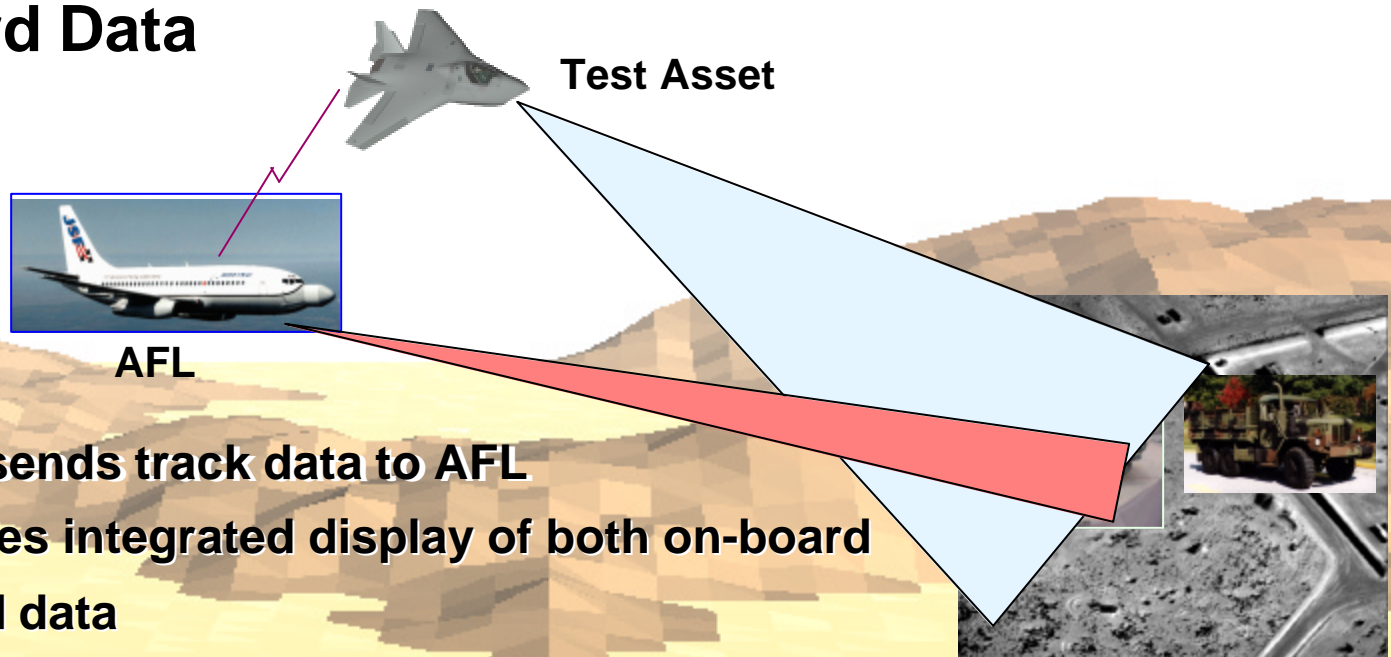
**M-35 Truck**





# Baseline Scenario: General Cooperative Tactics

**Objective:** Build Common Situational Picture including ;  
Manage Shoot List between A/C, Basic Fusion of  
Off-Board Data, Cue On-Board Sensors to Off-  
Board Data



1. Test Asset sends track data to AFL
2. AFL produces integrated display of both on-board and off-board data
3. AFL cues ownship sensors to off-board tracks
4. AFL maintains tracks on ownship only targets
5. AFL generates shoot list

Area of Interest (AOI)

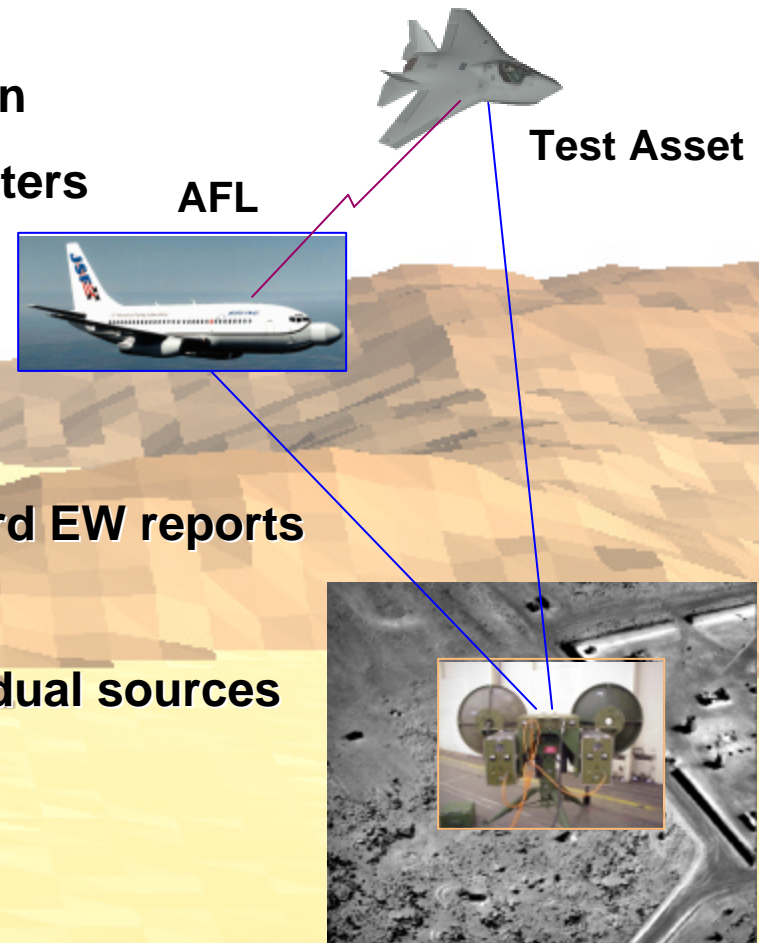




# Scenario 1: Cooperative, Passive Ranging

## Objective: Cooperatively and Passively Share EW Data Between Two Tactical Aircraft

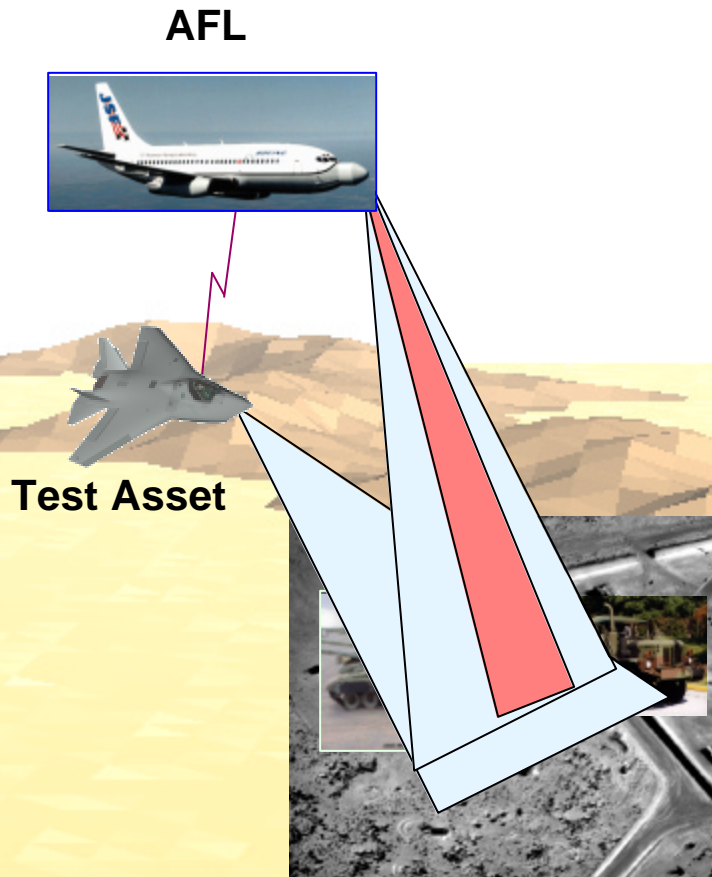
1. Area of interest (AOI) is pre-planned location
2. AFL commands Test Asset to AOI with emitters
3. Test Asset generates EW tracks from AOI
4. Test Asset transmits EW tracks to AFL
5. AFL generates EW data (reports) from AOI
6. AFL fuses off-board EW tracks with on-board EW reports into single tracks (track to report fusion)
7. AFL calculates ranges of targets based on dual sources data
8. AFL builds tactical picture





## Scenario 2: Off-Board Cueing

**Objective:** Transmit Data Into the Cockpit, Fuse With On-Board ATC Results

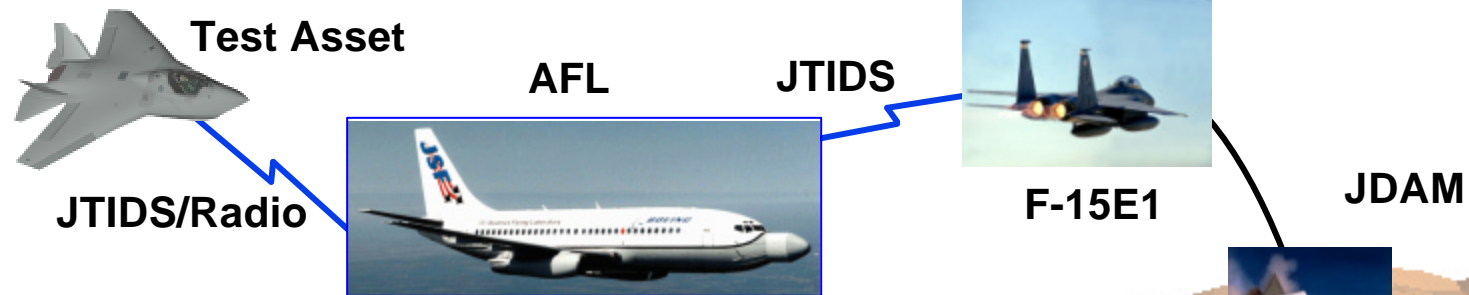


1. AOI from off-board source
2. TA generates SAR map of AOI
3. TA sends target data to AFL
4. AFL generates SAR map based on TA AOI
5. AFL performs ATC on SAR map
6. AFL performs T-FLIR
7. AFL performs ATC on T-FLIR image

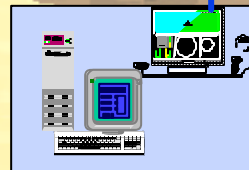


# Scenario 3: Cooperative JDAM Attack / BDA

**Objective:** Cooperatively Task Aircraft to Bomb Target of Interest Based on Ownship Target Location



1. TA sends SAR image to AFL
2. AFL isolates target using ATC and locates the precisely with image registration (IMR)
3. AFL sends target location to F-15E1
4. F-15E1 delivers JDAM on confirmed target
5. AFL performs pilot assisted BDA using TFLIR and SAR



Ground Integration Bench (GIB)







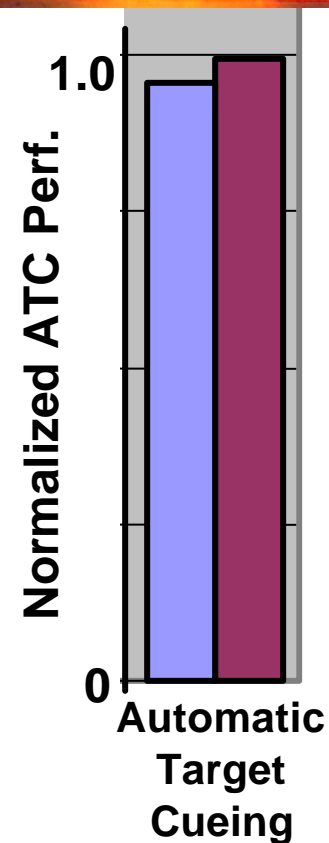
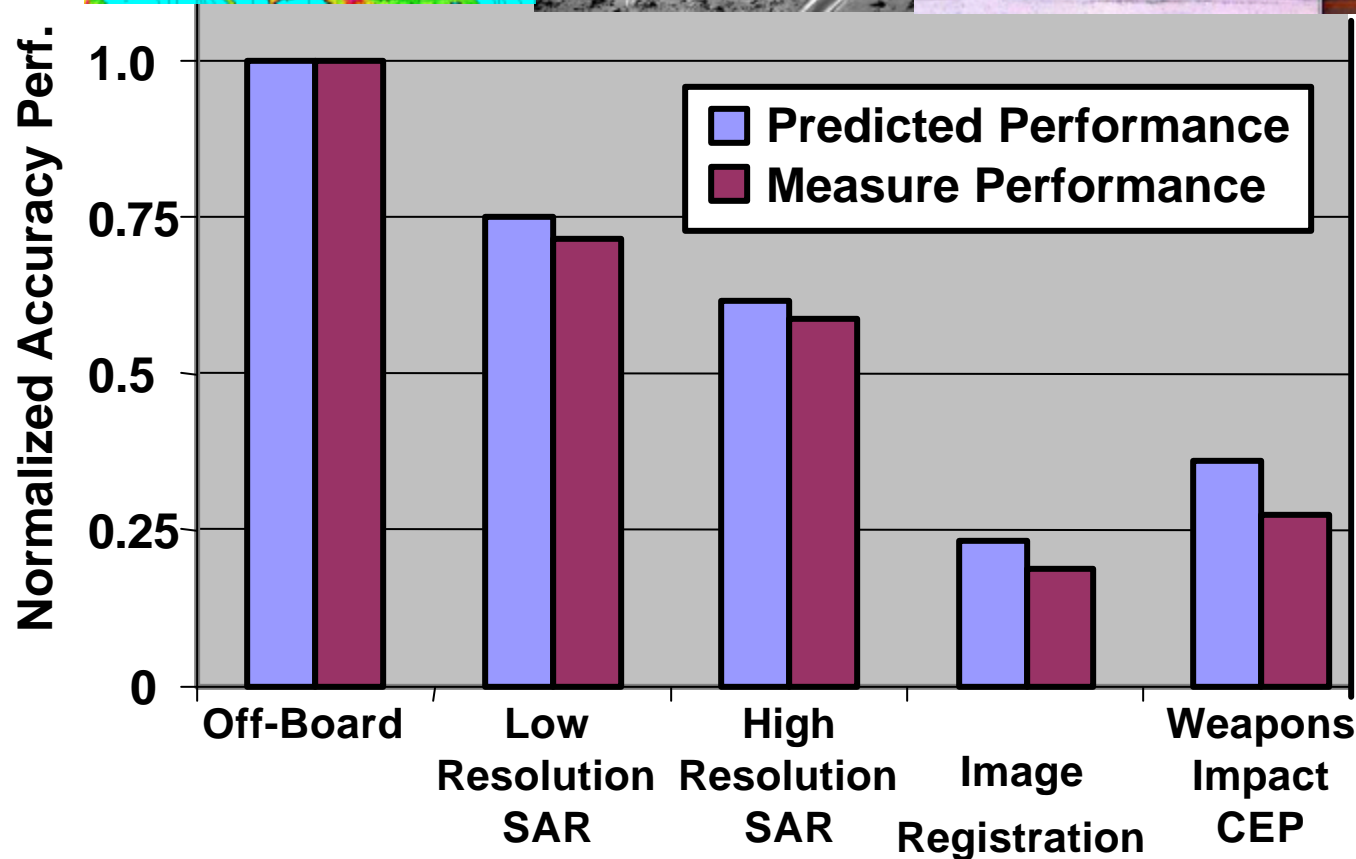
## SOS Demo Video



*The  
Mission...*



# Targeting & Weapon Delivery Accuracy Performance



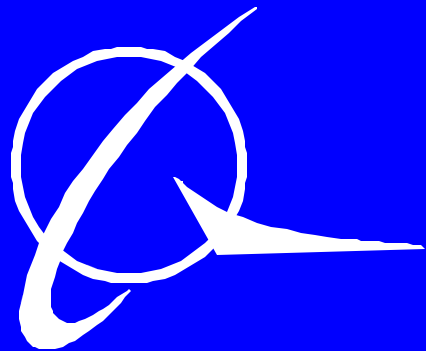


# Questions?

# JSIF

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